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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/005,506

12/05/2001

Gerard J. Foschini

16-2

7975

7590

09/28/2004

Docket Administrator (Room 3J-219)  
Lucent Technologies Inc.  
101 Crawfords Corner Road  
Holmdel, NJ 07733-3030

EXAMINER

D AGOSTA, STEPHEN M

ART UNIT

PAPER NUMBER

2683

DATE MAILED: 09/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/005,506

**Applicant(s)**

FOSCHINI ET AL.

**Examiner**

Stephen M. D'Agosta

**Art Unit**

2683

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☒ Claim(s) 3-15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 December 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Information Disclosure Statement*

The information disclosure statement (IDS) submitted on 12-5-01 is in compliance and accordingly, the information disclosure statement is being considered by the examiner.

### *Drawings*

1. Figures 1, 2a, 2b, 3, 4a, 4b, 7 and 10 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated (or don't disclose that these drawings represent an embodiment of the invention). See MPEP § 608.02(g). Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to because they are difficult to understand due to the poor quality of each drawing (ie. hand-written and bad copying). Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by

the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

The specification is objected to because it has several missing Serial Numbers (see pages 1, 7, 13, 18, 21, 26 and 29 (2x)).

***Preliminary Amendment***

The preliminary amendment has been received/recorded and figure 4a has been added to the drawings.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1-2** rejected under 35 U.S.C. 103(a) as being unpatentable over Keskitalo et al. US 6,345,188 and further in view of Vishwanath or Costa (hereafter Keskitalo and Vishwanath or Costa).

As per **claim 1**, Keskitalo teaches a method for use in at least a portion of a wireless communication system in which downlink signals are communicated from at least one of one-or-more BTS's to respective ones of a plurality of terminals, and uplink signals are communicated to at least one of one-or-more BTS's from respective ones of

a plurality of terminals (figure 1 shows mobiles #102 and BTS's #100 communicating via uplink and downlink channels in a TDMA, FDMA or CDMA network, C1, L10-47), the method comprising the steps of:

Using multi-user detection (MUD) to compensate for interference among uplink signals (C2, L53-64).

**But is silent on**

Using dirty paper coding to compensate for interference among downlink signals.

Keskitalo states that "...the IC/MUD techniques are complicated to realize, wherefore they have mainly been developed in the uplink direction" (C2, L62-64).

Hence the examiner interprets this to mean that other techniques are known/used and that they would be used in the downlink direction (and/or NO interference reduction technique would be used).

Papers from Vishwanath and Costa, both provided by the applicant, discuss the merits of dirty paper coding and their use in wireless systems. As interpreted by the examiner, they are easier to build/operate than the MUD system and would be used by one skilled in the art to simplify interference reduction for the downlink channel.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Keskitalo, such that using dirty paper coding to compensate for interference among downlink signals is used, to provide means for providing a less complicated interference reduction algorithm/system on the downlink channel(s).

As per **claim 2**, Keskitalo teaches claim 1 and the terminals are mobile terminal (figure 1 shows mobile terminals, #102).

***Allowable Subject Matter***

**Claims 3-15** objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 3 recites a highly specific design not found in the prior art cited and is, in the examiner's opinion, novel. Claims 4-15 depend from claim 3 and are therefore allowable as well.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

1. Hottinen US 5,943,330.
2. Sweatman et al. US 6,564,037
3. Jokinen US 6,532,254
4. Holtzman et al. US 6,404,760
5. Karimi et al. EP 1128564

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. D'Agosta whose telephone number is 703-306-5426. The examiner can normally be reached on M-F, 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Trost can be reached on 703-308-5318. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Stephen D'Agosta

A handwritten signature in black ink, appearing to be 'SD' or 'D'Agosta'.